

# **System and Method For Supporting Multi-rate Simulation Of A Circuit Having a Hierarchical Data Structure**

## **Abstract of the Disclosure**

A system for supporting multi-rate simulation of a circuit having a hierarchical data structure includes a simulator module having one or more computer programs for 1) partitioning the circuit into a plurality of group circuits, each group circuit includes one or more leaf circuits, where each leaf circuit produces a predictable set of output signals with a given set of input signals, 2) storing the group circuits in a scheduled event queue in accordance with priority in time which the group circuits need to be simulated, 3) retrieving from the scheduled event queue a set of group circuits for simulation within a predetermined time period, 4) distributing the set of group circuits into a set of predefined event lists, where each of the predefined event list stores one or more group circuits of a corresponding event type, and 5) simulating the one or more group circuits in each of the predefined event list in accordance with a rate of change of signal conditions of each individual group circuit. Hence, the system provides an efficient way to support multi-rate simulation by dynamically scheduling and synchronizing multiple group simulation event types and by communicating corresponding isomorphic activities through an efficient port connectivity interface.